

MANAGEMENT PLAN PART 3

White River National Wildlife Refuge

ANNUAL WATER MANAGEMENT PROGRAM

1989 Report

Submitted by:

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I. GENERAL - Existing Water Supplies

The White River is at flood stage when the river gauge reading at St. Charles reaches 25 feet. At that level the river completely overflows its banks. In January the river was above 20 feet. It reached flood stage on February 16 and remained there through May 4. Prolonged flood waters and excessive summer precipitation delayed the draining of moist soil units and GTRs. Rainfall for the year was 22 inches above normal. The first seven months recorded 50 inches of rain, which was 25 inches above the ten year average. The last five months recorded three inches below normal (Table 1). The dry fall and winter not only severely limited the amount of water available for migrating waterfowl on the refuge but throughout Arkansas. Those areas that we were able to flood received heavy waterfowl use. Other GTRs that rely on rain runoff for flooding remained dry until the end of the year.

Precipitation And River Stages

	River Stage (ft.)		Devia- tion	Precipi- tation 1989	Ten Year Average 1980-89
	Max.	Min.			
January	24.0	18.8	5.2	7.87	3.07
February	30.0	21.3	8.7	8.79	3.75
March	30.0	25.8	4.2	8.00	4.29
April	26.5	25.3	1.2	2.36	3.93
May	25.2	20.9	4.3	7.12	4.52
June	21.3	19.5	1.8	7.56	2.58
July	20.6	12.6	8.0	8.14	3.09
August	13.2	9.0	4.2	0.76	1.80
September	11.7	9.0	2.7	6.50	2.51
October	11.4	8.9	2.5	1.52	4.20
November	9.9	8.1	1.8	4.05	5.45
December	7.7	7.0	0.7	2.70	4.03
Totals				65.44	43.22

II. MANAGEMENT UNITS

All water management units are subject to overflow from the White River except the Farm Unit ponds, the White River Levee GTR, and the borrow pits east of the White River Levee. At 18 feet on the St. Charles gauge, water begins to overflow into the refuge forest from the White River. At 25 feet on the St. Charles gauge, the river is completely over its banks. The Mississippi River influences the lower two-thirds of the refuge, which means flooding can occur in that part of the refuge and will not be reflected on the St. Charles gauge. Inversely,

if the flood water comes from the White River and the Mississippi River is low, the northern portion of the refuge may flood while the southern portion does not.

A. Demonstration Area

This 150 acre unit received heavy duck use during the early part of the 1988-89 winter. It continued to receive substantial use in January even though most foods were already eaten and water levels were too deep for dabbling duck use. Spring and summer management plans had to be modified or cancelled due to the late flooding and excessive rains. Plans to plant milo and millet were cancelled because the area remained flooded through July. The higher ridges were disked and produced good stands of wild millet, smartweed, panic grass, and feather grass. Eighty acres in the lower areas were sprayed with 2,4-D to control bind weed and cocklebur, but few desirable grasses germinated in these lower areas. August was a dry month, and the area was irrigated twice by flushing water through it from the water storage area.

All three levees received erosion damage from overflow water. Fill dirt was hauled to repair holes and build up the levees.

The lower pool was slowly flooded beginning in October. Personnel from Patuxent Research Center used this area to trap and band 550 preseason mallards. The upper pool was flooded on November 15 to make more food available to arriving waterfowl. Up to 50,000 ducks were observed in the unit in November and December. Bitter cold temperatures from December 16 through the 25th caused the area to completely freeze over and little duck use occurred after that.

Management proposed for 1990 is as follows. Both pools will be drained as soon as river levels permit. As much area as possible will be disked and up to 60 acres will be planted to milo. Low levees may be pulled around the high ridges that cannot be irrigated by gravity flow water from the storage area. Water can then be pumped onto these areas as needed. Water from the water storage area will be used for irrigation during the summer and to reflood both lower and upper pools in late October.

B. Frazier Lake GTR

Stoplogs were pulled in May but the water level remained high into July. Stoplogs were replaced in September but the area did not fill until after the new year, due to lack of rain. Duck use in this normally heavily used GTR was restricted to the lake itself and was minimal.

C. Farm Ponds and Moist Soil Sites

The three small moist soil areas were drained on March first. All three depend on rain run-off for irrigation and reflooding. They were mowed in July and produced good stands of smartweed. Gates were closed in October, and there was enough rain in November to fill these pools.

Two acres of water primrose growing in the farm pond were sprayed with 2,4-D. The weed was growing in thick mats and taking over the ponds. Unfortunately, it rained soon after the herbicide was applied, resulting in less than desired

weed removal. Coupled with the excellent corn crop and wheat that was on the farm, the ponds and moist soil pools received excellent duck and goose use.

The dams on Ponds 4 and 5 required repairs due to extensive beaver tunneling. The tunnels were dug out and fill dirt was hauled onto the dams.

Management will be the same in 1990 as it was last year for both the ponds and moist soil pools.

D. Goose Lake Moist Soil Unit

Goose Lake was not dewatered until the last week in July due to the heavy rains in June and the first half of July. A good stand of wild millet occurred in the center of the lake, but cocklebur covered the peripheral portion. It was sprayed with 2,4-D in August which killed the cocklebur and allowed moist soil grasses to be produced.

The gates were closed in October but it was not until November that there was enough rain to shallowly flood the lake. Waterfowl use was good.

Management in 1990 will be to dewater in June. A treatment of 2,4-D will be aerially applied to control cocklebur. If water conditions on LaGrue Bayou allow us to get heavy equipment across, the water control structures on LaGrue and White Lakes will be renovated to allow earlier water control for reflooding Goose Lake in October. A thick stand of water privet has overtaken the north and east banks. A bulldozer or an application of Garlon herbicide will be used to reclaim the lake banks for moist soil grasses.

E. Parish Lake

This structure and levee were constructed specifically to provide additional acres feet of water for recreational fishing in a series of inter-connected lakes. Due to the blowout on Mossy Lake in 1987, water levels in these lakes dropped with the river. The Corps of Engineers repaired the Mossy blowout in December. Plans for 1990 will be to hold the water up for fishing.

F. Tarleton Creek GTR

This unit has two large structures, one on Tarleton Creek and the other on Thomas Bayou. It was completely flooded at the beginning of the year. Stoplogs were pulled at Thomas Bayou in July and replaced in October. This GTR is fed by a large watershed and it was at full pool in November. Duck use was primarily by wood ducks.

Management in 1990 will be to drain by early March if possible and replace stoplogs by mid-October.

G. Dry Lake Moist Soil Unit

The water control structure was opened in May but heavy rains kept the unit full until the end of July. Plans were to plant milo and millet on the ridges and an Ipsco 8 inch relift pump was purchased in 1988 to pump water from Wolf Bayou

onto the crops. Rains washed all these plans out. However, it benefitted the germination of natural grasses, and excellent stands of moist soil plants were produced on all but the highest ridge along the east side next to the lake. In August, 100 acres of this 310 acres unit were aerial treated with 2,4-D for cocklebur control. In September, ten acres were disked and winter wheat was aerially seeded. The wheat produced a good stand.

Ship Canal water was diverted to Reservoir B and to Dry Lake in October. Beavers continually rebuilt dams along Honey Locust Bayou. This, coupled with the lack of rain in the fall, kept Dry Lake from getting to full pool until after the end of the year. Approximately three-quarters of the unit was slowly flooded and received excellent waterfowl use the entire winter. As many as 5,000 Canada geese and 40,000 ducks were observed on the lake.

Management plans for 1990 will be similar to the past. Control gates will be opened June 1 or as soon thereafter as possible. Drawdown rates will be slow to encourage germination of desirable species. A portion of the high ridge along Wolf Bayou will be planted to milo and/or millet. Low levees will be pulled and the crops irrigated if necessary. A portion of the high ridge next to Dry Lake will be disked and planted to wheat in September for Canada geese. Aerial spraying of 2,4-D will be used to control undesirable species. Reflooding will start during the first week of October and the unit progressively flooded with normal pool elevations reached by the end of December.

H. Reservoir A and B GTRs

These 2 large GTRs are capable of impounding water on a total of 5,000 acres of forestland through a complicated system including 7 major water control structures, 2 concrete spillways, 5 rock spillways, and 12 miles of levees. In addition, to flood the Dry lake Moist Soil Unit, water must be pushed some 8 miles through 2 bayous and a connecting ditch in Reservoir B before entering the moist soil area. Beaver dams throughout the area retard both draining and reflooding efforts and have to be constantly removed.

Flood waters receded enough in April at Jacks Bay for foresters to mark and sell 240 acres of pulpwood and sawlogs along Levee B in Stand 1S41. This is the second active sale within the GTR. The first was sold along Honey Locust Bayou last year but the loggers did not complete their operations before high water forced them out. Both of these cuts are to remove undesirable trees to favor mast producing species and to open up the tree canopy. Loggers tried to get into the sale areas this past summer, but the heavy rains and beaver problems kept the bottomlands too wet for their equipment.

Levee A received extensive damage from floodwater. Reservoir A was drained in August in order to make repairs. A drainage pipe was replaced, a control structure repaired, and large amounts of dirt and riprap added to try and save the levee.

In 1983, a minimum pool elevation of 135.5 feet MSL was set to flood approximately 300 acres of extremely low quality forestland and create a dead timber reservoir within the 2000 acre Reservoir A GTR. While the area was drained this summer, foresters inspected the "dead tree reservoir" and found the water elm and locust still surviving.

During the first week of October, the water control gate on the Arkansas River Ship Canal was opened and Reservoir A was reflooded. After Reservoir A was refilled, ship canal water was diverted to Reservoir B along Honey Locust Bayou.

Due to the dry fall this GTR was one of very few flooded timber sites available to migrating ducks throughout Arkansas. It is also the only area open for duck hunting on the refuge. Hunting pressure increased 3-fold from last year. The reason being that it was the only public hunting grounds in the area with water. Success was generally good, and duck use remained excellent until the mid-December freeze.

Management in 1990 will be to drain A and B by early March or as soon thereafter as possible and to reflood in late October. Close attention will be given to beaver dam removal along Honey Locust and Wolf Bayous in order to allow the timber contractor to complete his sale. Water levels in Reservoir A need to be held up for the next 3-5 years to try and kill the water elm and locust.

I. Parish Bayou - Oxbow Lake GTR

The water control structure for Oxbow Lake washed into the White River in 1988 when the supporting river bank caved in from erosion. This structure was built primarily to hold lake water up for fishing. It provided little duck habitat in the GTR, and there are no plans to replace the structure.

The gates on Parish Bayou were opened as soon as flood waters receded enough for us to reach the structure and were closed in October. Very little water was in this GTR when the year ended.

Plans for 1990 will be the same. The gates will be opened as soon as possible after March 1. Beaver dams will be removed after flood waters have subsided. The gates will be closed in late September or early October to catch rain runoff for winter duck habitat.

J. Willow Lakes/Water Storage Area

This dead timber reservoir was created in the early 1970s by constructing a levee and water control structure. Currently, the entire area operates as a 300 acres marsh. The unit was at full pool in the beginning of the year and remained there throughout the year with little fluctuation.

This unit contains an active bald eagle nest which has produced young every year except one since 1982. In 1989, two young eagles were successfully fledged.

Duck use in this unit has been low the past several year. Management plans for 1990 are to try and dewater it after the eaglets have fledged and reflood in the fall.

K. Prairie Lakes GTR

This unit was drained after spring overflow and the control gate closed in October. Due to lack of rain it remained dry until the new year.

L. White River Levee GTR

In 1984, the levee washed out. It was repaired in the summer of 1986 and washed out again in October of the same year. An agreement with the White River Levee Board calls for water levels of 144 MSL during winter months. This level floods only about 25% of the area within the unit and puts very little water on adjacent fields. A meeting was held with the Levee Board in 1988, and they agreed to raise the water level to 145 MSL; however, if they received complaints from local farmers it would have to be lowered back to 144 MSL. The year began with the level at 145 MSL, and the Board did not receive any complaints. In the summer of 1989 we requested the Board to try raising the level to 145.5 after October 15, and they agreed; however, it was never reached because of the lack of rain. The water level was around 141 until heavy rains on December 31 caused it to rise to 144-145 on January 2, 1990.

M. Bear Lake GTR

This unit was completely flooded when the year began. The water control structure gate was opened after spring floods and closed at the beginning of October. It remained dry until the end of the year.

N. Taylor Lake GTR

The GTR was flooded when the year began. The water control gate was opened after spring floods and closed at the beginning of October. It did not receive much water until after the end of the year.

O. Beaver Impoundments

Approximately 4,000 acres of this habitat exist on White River Refuge. Normally 1/2 of these are drained after flood conditions recede to encourage establishment of riparian vegetation. In addition, a large number of beaver dams are drained annually to prevent conversion of high quality forestland to beaver impoundments. A large part of these dams are located in development units, particularly GTRs. All dams were checked and opened up with explosives. Those in Reservoir B were removed several times during the year, but beaver continued to repair them. Although 600 beavers were removed in 1989, a bigger effort will be made in this area in 1990.

P. South Levee Borrow Ditch.

A borrow ditch just north of the south entrance gate on the Levee Unit washed out during the year. The pit contains approximately seven acres, and an excellent stand of nut grass and cyperus grew in the dried up borrow pit. A pipe and stop log riser was fabricated and installed in the dam while fixing the washout. This allowed us to manage the area for moist soils. Rain waters covered part of the pit during November and it received fair duck use. Plans for next year will be to draw down in June and to close the structure in late September to catch rain water.